

600

410 420 430 440 450 460 470 480 490 500 510 520 530 540 550 560 570 580 590

113r_PKA_{Ca} PPFADQPHQYKIVCG KVRFFSHSSDLQLLNLQVLDLTGFCGNLNGQVADHINHQFATTDLAIYQKVEAPPFPKFKGPGDTSNEDDYEE PCEIRVXINEKGCGKEFTP
1jlu_AMPK PPFADQPHQYKIVCG KVRFFSHSSDLQLLNLQVLDLTGFCGNLNGQVADHINHQFATTDLAIYQKVEAPPFPKFKGPGDTSNEDDYEE PCEIRVXINEKGCGKEFTP
34855293.m TPFYADSMAEPTVYKIVHRYRH LSLP RADMGVPPEAODLRLGILCPCAEIRLG RGCACDFKHKFFFGLDIEG RLDSPVPITPDEGATDTCNE DVVVEDRLTAM ETLSMDQEDMALCVHLFVIVSYSC
14192945.m TPFYADSMAEPTVYKIVHRYRH LSLP LADGVVVPPEAODLRLGILCPCAEIRLG RGCACDFKHKFFFGLDIEG RLDSPVPITPDEGATDTCNE DVVVEDRLTAM VSGGGEELLSMDQEDMLCVHLFVIVSYSC
DMPK1.h TPFYADSMAEPTVYKIVHRYRH LSLP LDEEGVPPEAODLRLGILCPCAEIRLG RGCACDFKHKFFFGLDIEG RLDSPVPITPDEGATDTCNE DVVVEDRLTAM VSGGGEELLSMDQEDMLCVHLFVIVSYSC
25145908.w TPFYASERVDPYKIMNHQDM LDFPDDEIDDVV VSEBAKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ EQQPFVRLAATTCNHLFVIVFSYTHGSLLSDARSLTDETRATAQRQGDA
24762562.f TPFYAESLIVDPYKIMNHQCN FNLPSCOTLNKYVSEASODLLCKLICIPENRGL CNGIODEHPWFGVIDKRN IRQGAPXPVVPBVSSPDTISNE DVVVEDCLTQCLQ DSIPPSANPASCPHFLFIGHTSLSLTS
31240045.i TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
33942081.m TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
16758420.m TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
MRCK.b TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
16758474.m TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
MRCK.a TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
38084833.m TPFYAESLIVDPYKIMNHQNS FDFPNDDDF FGCVSTAEKDLRQLLCSSDVRFG RNCLEDFQFLHFFFEGIDINT IRDSNPPVVPBVSSPDTISNE DVVVEDCLTQCLQ SRAITSTNSASQPLPVLKEXKHGSE
34861838.m TPFYAESLIVDPYKIMNHEDH LOFFPSDVO DVPAASQNLIRQLLCRCDEBRIG RCGLDDRHSRHFEGVDFER LATSTAPIVPLLRGFVVDTSNE DVVVEDCLTQCLQ SELMAPCETPHCVSEQVKVELSRKC
DMPK2.h TPFYAESLIVDPYKIMNHEDH LOFFPSDVO DVPAASQNLIRQLLCRCDEBRIG RCGLDDRHSRHFEGVDFER LATSTAPIVPLLRGFVVDTSNE DVVVEDCLTQCLQ SELMAPCETPHCVSEQVKVELSRKC
ROCK2.h TPFYAESLIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
27806123.m TPFYADSIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
6677761.m TPFYADSIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
6981478.m TPFYADSIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
27819643.d TPFYADSIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
13592049.m TPFYADSIVDPYKIMNH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
6677759.m TPFYADSIVDPYKIMNH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
ROCK1.h TPFYADSIVDPYKIMNH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
24642569.f TPFYADSIVDPYKIMDH KNSLCFCPPDAETSKGAKNLCAFEITDREVRLRG RNCVEEIKHHRFFKNDQDHWNDRPIVPLLSDDTSNE DEDMLRNI
17508247.w TPFYAEALIVDPYKIMNH KTSKLFKEPEPLISTAKDIKFKFSAAPDRLG RNCVDDHNRHFFVNDPTEFATLREASPVPILPKLDDDTIHEIER DEKPEEVPPV
1muco_AUR1 PPFADQPHQYKIVCG RVEFTVPPD FVTECARLDRLLKHNPS Q RMEPFLVLEHPWINTANSSPKNCNKSASAKQS PEKNWSVSSSPCOLPSGSCSEELFVIVFSYSKALGILGRSES
CRIK.h PPFEGCGSARFNNIMM FORFLKPPDPKVSSELDLQLSILCVCIG RUKPFGCLCCHFPSKIDWV LKSDDDTSNEDE PEKNWSAFILCVFAEPLAFSEELFVIVFSYSKALGILGRSES
33469071.m TPFPNECGSARFNNIMM FORFLKPPDPKVSSELDLQLSILCVCIG RUKPFGCLCCHFPSKIDWV LKSDDDTSNEDE PEKNWSAFILCVFAEPLAFSEELFVIVFSYSKALGILGRSES
34872621.m TPFPNECGSARFNNIMM FORFLKPPDPKVSSELDLQLSILCVCIG RUKPFGCLCCHFPSKIDWV LKSDDDTSNEDE PEKNWSAFILCVFAEPLAFSEELFVIVFSYSKALGILGRSES
24663340.f TPFPNECGSARFNNIMM FORFLKPPDPKVSSELDLQLSILCVCIG RUKPFGCLCCHFPSKIDWV LKSDDDTSNEDE PEKNWSAFILCVFAEPLAFSEELFVIVFSYSKALGILGRSES
19075145.y TPFPNSDILMPLYPRHII RVEGPFKVKYSPHLSLIEGCLIAKDR RARHIEENKSHFFEGVWD S RLKELKPPFPVIVNGSDTSIHSVVD TQFDAAKRKLNVKCNMFMVFTPDPPEFVSRFSSMIE
1omw_GPRK2 SPERKHKDKRHEIDRMT LTMAVELPDSHSPBLR DEEGLLORDVNRLGCLGRGAEDEPSPFRSLPQMVFQKYPPIP RGEVNAADAPDIGSFD EEDIKGKLLDSDQEPVIRNPPLTIS ERWQQEVAITVFDITNAE

800

610 620 630 640 650 660 670 680 690 700 710 720 730 740 750 760 770 780 790

113r_PKA_{Ca} LEALQLPVSDLQG LDLPVVSPPDQAAEADPAA VPVPAPAEETMV TLRLEQALEEEEVLTROSLSRDEA
1jlu_AMPK LEALQLPVSDLQG LDLPVVSPPDQVAEADLVA VPAVVAEATTV TLQQLQALEEEEVLTROSLSRDEA
34855293.m LEALQLPVSDLQG PSLEPSVQDQDETAVAVPAA VPA AEAAEAV TLRELAQEEEEEVLTROSLSRDEA
14192945.m LEALQLPVSDLQG ESTQTVQSLHGSTR ALGNSNRDKBKKRNLBEEERMKSKMADSNRLERQ QKPKDDEVAESEK KKLKELRNQKLVMEKSEQLRDNHBLQDVLVKA
DMPK1.h VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
25145908.w VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
24762562.f VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
31240045.i VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
33942081.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
16758420.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
MRCK.b VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
16758474.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
MRCK.a VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
38084833.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
34861838.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
DMPK2.h VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
ROCK2.h VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
27806123.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
6677761.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
6981478.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
27819643.d VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
13592049.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
6677759.m VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
ROCK1.h VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
24642569.f VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
17508247.w VEARQOLLEPHVQA EKQLTSPDSTRKLQD DAILPQNNSETP - VD SVQLKALNDQLAQKQAEKAELSKQHNEFVERLKDQDSELQDAISORNIA
1muco_AUR1 DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
CRIK.h DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
33469071.m DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
34872621.m DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
24663340.f DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
19075145.y DSQDKCHKMQEMTRLHRRVSEVEAVLQSKYELKASETQRSLQEDLATYITCSSLKRSLEGARMEVSQEDDKALQLLHDIREQSKLQEIKYEQYAOV
1omw_GPRK2 TDRLEAR -

Sequence alignment of AMPK isoforms and related proteins across multiple positions. The alignment shows conservation of amino acids (green for identical, red for similar) and gaps (blue). The top section covers positions 1400-1590, and the bottom section covers positions 1600-1900.

Top Section (Positions 1400-1590):

- 113r_PKACa:** Positions 1400-1590.
- 1jlu_AMPK:** Positions 1400-1590.
- 34855293.m:** Positions 1400-1590.
- 14192945.m:** Positions 1400-1590.
- DMPK1.h:** Positions 1400-1590.
- 25145908.w:** Positions 1400-1590.
- 24762562.f:** Positions 1400-1590.
- 31240045.i:** Positions 1400-1590.
- 33942081.m:** Positions 1400-1590.
- 16758420.m:** Positions 1400-1590.
- MRCKB.h:** Positions 1400-1590.
- 16758474.m:** Positions 1400-1590.
- MRCKA.h:** Positions 1400-1590.
- 38084833.m:** Positions 1400-1590.
- 34861838.m:** Positions 1400-1590.
- DMPK2.h:** Positions 1400-1590.
- ROCK2.h:** Positions 1400-1590.
- 27806123.m:** Positions 1400-1590.
- 6677761.m:** Positions 1400-1590.
- 6981478.m:** Positions 1400-1590.
- 13592049.m:** Positions 1400-1590.
- 6677759.m:** Positions 1400-1590.
- ROCK1.h:** Positions 1400-1590.
- 24642569.f:** Positions 1400-1590.
- 17508247.w:** Positions 1400-1590.
- 1muo_AUR1:** Positions 1400-1590.
- CRIK.h:** Positions 1400-1590.
- 33469071.m:** Positions 1400-1590.
- 34872621.m:** Positions 1400-1590.
- 24663340.f:** Positions 1400-1590.
- 19075145.y:** Positions 1400-1590.
- 1cmw_GPRK2:** Positions 1400-1590.

Bottom Section (Positions 1600-1900):

- 113r_PKACa:** Positions 1600-1900.
- 1jlu_AMPK:** Positions 1600-1900.
- 34855293.m:** Positions 1600-1900.
- 14192945.m:** Positions 1600-1900.
- DMPK1.h:** Positions 1600-1900.
- 25145908.w:** Positions 1600-1900.
- 24762562.f:** Positions 1600-1900.
- 31240045.i:** Positions 1600-1900.
- 33942081.m:** Positions 1600-1900.
- 16758420.m:** Positions 1600-1900.
- MRCKB.h:** Positions 1600-1900.
- 16758474.m:** Positions 1600-1900.
- MRCKA.h:** Positions 1600-1900.
- 38084833.m:** Positions 1600-1900.
- 34861838.m:** Positions 1600-1900.
- DMPK2.h:** Positions 1600-1900.
- ROCK2.h:** Positions 1600-1900.
- 27806123.m:** Positions 1600-1900.
- 6677761.m:** Positions 1600-1900.
- 6981478.m:** Positions 1600-1900.
- 13592049.m:** Positions 1600-1900.
- 6677759.m:** Positions 1600-1900.
- ROCK1.h:** Positions 1600-1900.
- 24642569.f:** Positions 1600-1900.
- 17508247.w:** Positions 1600-1900.
- 1muo_AUR1:** Positions 1600-1900.
- CRIK.h:** Positions 1600-1900.
- 33469071.m:** Positions 1600-1900.
- 34872621.m:** Positions 1600-1900.
- 24663340.f:** Positions 1600-1900.
- 19075145.y:** Positions 1600-1900.
- 1cmw_GPRK2:** Positions 1600-1900.

The figure displays sequence alignments for various protein variants across two time periods: 1800-1900 and 2000-2010. The top section (1800-1900) includes variants like 113r_PKAc, 1jlu_AMPK, 34855293.m, 14192945.m, DMPK1.h, 25145908.w, 24762562.f, 31240045.i, 33942081.m, 16758420.m, MRCKb.h, 16758474.m, MRCKa.h, 30804833.m, 34861838.m, DMPK2.h, ROCK2.h, 27806123.m, 6677761.m, 6981478.m, 27819643.d, 13592049.m, 6677759.m, ROCK1.h, 24642569.f, 17508247.w, 1muo_AUR1, CRIK, 33469071.m, 34872621.m, 24663340.f, 19075145.y, and 1omw_GPRK2. The bottom section (2000-2010) includes variants like 113r_PKAc, 1jlu_AMPK, 34855293.m, 14192945.m, DMPK1.h, 25145908.w, 24762562.f, 31240045.i, 33942081.m, 16758420.m, MRCKb.h, 16758474.m, MRCKa.h, 30804833.m, 34861838.m, DMPK2.h, ROCK2.h, 27806123.m, 6677761.m, 6981478.m, 27819643.d, 13592049.m, 6677759.m, ROCK1.h, 24642569.f, 17508247.w, 1muo_AUR1, CRIK, 33469071.m, 34872621.m, 24663340.f, 19075145.y, and 1omw_GPRK2. The alignments show significant mutations and structural changes, particularly in the 2000-2010 period, indicated by red vertical bars.

